Chapter 5
Two Day Low Dose Dexamethasone Suppression Test

Indication: To assess suppressibility of cortisol in patients with an equivocal screening test such as overnight 1 mg examethasone (dex) suppression test, 24 h urinary free cortisol, and/or late night salivary cortisol.

Preparation: None.

Materials Needed: Eight dexamethasone 0.5 mg tablets

Cortisol: Gold top tube

One gold top tube for cortisol

Assay for Cortisol: **Chemiluminescence Immunoassay (CLIA).**

Precautions: None.

Interpretation: Serum cortisol concentration > 1.4–1.8 μg/dl after 2 day low dose dex is strongly suggestive of Cushing's syndrome [1].

Caveats:

- Use of the 2 mg 2-day test has greater specificity at high sensitivity compared to the 1 mg overnight test. However, it requires more patience on the part of the patient [2, 3].
- We do not recommend 24 h urine cortisol measurement during 2 mg dexamethasone suppression test (DST) because measurement of serum cortisol concentration during the low dose dexamethasone test is simpler and more reliable than measurements of urinary steroids [3].
- Do not use this test if the patient is on estrogens which increase cortisol binding globulin (CBG) and falsely elevate cortisol levels [4].
- Drugs such as phenytoin, phenobarbital, phenobarbitone, carbamazepine, rifampicin, and alcohol induce hepatic enzymatic clearance of dexamethasone, mediated through CYP 3A4, thereby reducing the plasma dexamethasone concentrations and may be associated with a false positive result [5].

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- To evaluate for false-positive and negative responses, some experts have advocated simultaneous measurement of both cortisol and dexamethasone during dexamethasone suppression tests to ensure adequate plasma dexamethasone concentrations.

Procedure: Completed as outpatient

1. Instruct patient to begin dexamethasone tablets. Patient takes one tablet every 6 h for a total of 8 doses (8 am, 2 pm, 8 pm, and 2 am). Some clinicians prefer a different schedule such as 6 am, 12 pm, 6 pm, and 12 am as a more convenient alternative. Studies were performed in the former schedule.
2. 6 h after the last dose, draw blood for cortisol (8 am).

    - Cortisol level at the end of the test: _____
    - Date and time of the cortisol: _____

Physician name and signature: _____

RN performing the procedure: _____

Additional orders by physician: _____

References

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2. Kennedy L, Atkinson AB, Johnston H, Sheridan B, Hadden DR. Serum cortisol concentrations during low dose dexamethasone suppression test to screen for Cushing's syndrome. Br Med J Clin Res Ed. 1984;289(6453):1188–91.
3. Klose M, Lange M, Rasmussen AK, et al. Factors influencing the adrenocorticotropin test: role of contemporary cortisol assays, body composition, and oral contraceptive agents. J Clin Endocrinol Metab. 2007;92(4):1326–33.
4. Kyriazopoulou V, Vagenakis AG. Abnormal overnight dexamethasone suppression test in subjects receiving rifampicin therapy. J Clin Endocrinol Metab. 1992;75(1):315–7.
5. Meikle AW. Dexamethasone suppression tests: usefulness of simultaneous measurement of plasma cortisol and dexamethasone. Clin Endocrinol (Oxf). 1982;16(4):401–8.